

What is claimed is:

1. A synchronous control method for controlling a follower element in synchronism with a leading element, comprising the steps of:

setting a positional relationship between the leading element and the follower element in synchronism, and a start position for starting the synchronism of the follower element and the leading element;

performing an acceleration control of the follower element between a motion start position preceding the start position of the synchronism and the start position of the synchronism; and

performing a position control of the follower element based on position data of the leading element and the set positional relationship after the follower element reaches the start position of the synchronism.

2. A synchronous control method according to claim 1, wherein said motion start position is set at a position preceding the start position of the synchronism by a predetermined distance, and the acceleration control of the follower element is performed such that a velocity of the follower element varies linearly along a straight line from the motion start position to the start position of the synchronism.

3. A synchronous control method according to claim 1, wherein the acceleration control is performed according to a predetermined acceleration curve so that the position of the follower element when the acceleration terminates coincides with the start position of the synchronism.

4. A synchronous control method according to claim 1, wherein the follower element is decelerated to be stopped according to a predetermined deceleration curve so that the follower element is brought out of the synchronism.

5. A synchronous control method according to claim 1, wherein a plurality of start positions of the synchronism are set respectively for a plurality of follower elements so that the follower elements are independently controlled in synchronism with the leading element.

6. A synchronous control apparatus for controlling a follower element in synchronism with a leading element, comprising:

storing means storing data on a positional relationship between the leading element and the follower element in synchronism, and data on a start position for starting the synchronism of the follower element and the leading element;

means for performing an acceleration control of the follower element between a motion start position preceding the start position of the synchronism and the start position of the synchronism; and

means for performing a position control of the follower element based on position data of the leading element and the set positional relationship after the follower element reaches the start position of the synchronism.

7. A synchronous control apparatus according to claim 6, wherein said storing means stores data on the motion start position of the follower element, a linear acceleration line is formed based on the data of the motion start position of the follower element and the data on a start position for starting the synchronism, and a velocity of the follower element is controlled to vary along the linear line from the motion start position to the synchronism start position of the follower element.

8. A synchronous control apparatus according to claim 6, wherein said storing means stores data on an acceleration curve for synchronizing and the acceleration control is performed according to the acceleration curve so that the position of the follower element when the acceleration terminates coincides with the start position of the synchronism.

9. A synchronous control apparatus according to claim 6, wherein said storing means stores data on an deceleration curve for deceleration and stop of the follower element, and the follower element is decelerated to be stopped according to the deceleration curve so that the follower element is brought out of the synchronism.

10. A synchronous control apparatus according to claim 6, wherein said storing means stores data on positional relationships between the leading element and a plurality of follower elements in synchronism, and data on start positions for starting the synchronism of the plurality of follower elements and the leading element so that the plurality of follower elements are independently controlled in synchronism with the leading element.